

Amendment After Final
April 17, 2006

FIS920030352US1
Serial No.: 10/707,892

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A durable chip pad comprising:
a terminal metal layer disposed on a passivating layer;
a diffusion barrier layer on said terminal metal layer;
a conducting layer pad on said diffusion barrier;
a ~~plated~~ hard test barrier layer on, and enclosing, said conducting layer pad; and
a plate passivating layer on said hard test barrier layer.
2. (original) A durable chip pad as in claim 1, wherein said diffusion barrier layer includes an adhesion layer on barrier metallurgy.
3. (original) A durable chip pad as in claim 2, wherein said barrier metallurgy is selected from a group of metals and metal alloys comprising titanium (Ti), titanium nitride (TiN), titanium tungsten (TiW), chromium (Cr) and tantalum/tantalum nitride (Ta/TaN).
4. (original) A durable chip pad as in claim 3, wherein said adhesion layer is selected from a group of metals and metal alloys comprising chrome-copper (CrCu), nickel vanadium (NiV) and titanium (Ti).
5. (currently amended) A durable chip pad as in claim 1, wherein said plated hard test barrier layer comprises a nickel (Ni) ~~plated~~ layer.
6. (canceled)

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7. (original) A durable chip pad as in claim 1, wherein said plate passivating layer is selected from a group of metals comprising copper (Cu), ruthenium (Ru), rhodium (Rh) and gold (Au).

8. (currently amended) An integrated circuit (IC) chip with circuits formed thereon, a plurality of chip interconnect pads formed on a surface of said IC chip, one or more of said plurality of chip interconnect pads being a durable chip pad comprising:

a terminal metal layer disposed on a chip passivating layer and connecting to underlying chip wiring through a via through said chip passivating layer;

an adhesion/barrier layer on said terminal metal layer;

a seed pad [[layer]] on said adhesion/barrier layer;

a hard test barrier layer plated on, and enclosing, said seed pad [[layer]]; and

a plate passivating layer on said hard test barrier layer.

9. (previously presented) An IC as in claim 8, wherein said adhesion/barrier layer includes an adhesion layer on barrier metallurgy and said barrier metallurgy is selected from a group of metals and metal alloys comprising titanium (Ti), titanium nitride (TiN), titanium tungsten (TiW), chromium (Cr) and tantalum/tantalum nitride (Ta/TaN).

10. (original) An IC as in claim 9, wherein said adhesion layer is selected from a group of metals and metal alloys comprising chrome-copper (CrCu), nickel vanadium (NiV) and titanium (Ti).

11. (currently amended) An IC as in claim 10, wherein said seed pad [[layer]] comprises a copper pad [[layer]].

12. (currently amended) An IC as in claim 11, wherein said hard test barrier layer comprises a nickel (Ni) layer plated to and extends along the sides said copper pad [[layer]].

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13. (original) An IC as in claim 12, wherein said plate passivating layer is selected from a group of metals comprising copper (Cu), ruthenium (Ru), rhodium (Rh) and gold (Au).

14. (original) An IC as in claim 13, wherein said IC is one of a plurality of identical ICs on a wafer, each of said plurality of identical ICs located in a die on said wafer.

15 – 20 (canceled)

21. (currently amended) A durable chip pad comprising:

- a terminal metal layer disposed on a passivating layer;
- a diffusion barrier layer on said terminal metal layer;
- a ~~conducting~~ copper seed layer pad on, and enclosing, said diffusion barrier layer;
- ~~a copper seed layer on said conducting layer;~~
- a nickel layer plated to said copper seed layer pad; and
- a plate passivating layer on said nickel layer.

22. (previously presented) A durable chip pad as in claim 21, wherein said diffusion barrier layer includes an adhesion layer on barrier metallurgy.

23. (previously presented) A durable chip pad as in claim 22, wherein said barrier metallurgy is selected from a group of metals and metal alloys comprising titanium (Ti), titanium nitride (TiN), titanium tungsten (TiW), chromium (Cr) and tantalum/tantalum nitride (Ta/TaN).

24. (previously presented) A durable chip pad as in claim 23, wherein said adhesion layer is selected from a group of metals and metal alloys comprising chrome-copper (CrCu), nickel vanadium (NiV) and titanium (Ti).

25. (previously presented) A durable chip pad as in claim 21, wherein said plate passivating layer is selected from a group of metals comprising copper (Cu), ruthenium (Ru), rhodium (Rh) and gold (Au).